

SBIR

Small Business
Innovation
Research
for FY 1998

DOC PROGRAM SOLICITATION

Closing Date: January 14, 1998

October 1997 DOC 98-1

This page is intentionally blank.

TABLE OF CONTENTS

		PAGE
1.0	PROGRAM DESCRIPTION	1
1.1 1.2 1.3 1.4	Introduction Three-Phase Program Eligibility Contact with DOC	1 1 2 2
2.0	DEFINITIONS	3
2.1 2.2 2.3	Small Business Research or Research and Development Socially and Economically Disadvantaged Small Business Concern	3 4
2.4 2.5 2.6	Women-Owned Small Business Subcontract Commercialization	4 4 5
3.0	PROPOSAL PREPARATION	5
3.1 3.2 3.3 3.4 3.5 3.6	Proposal Requirements Phase 1 Proposal Limitations Phase 1 Proposal Format Equivalent Proposals or Awards Prior SBIR Phase 2 Awards Proposed Budget	5 6 6 8 9 9
4.0	METHOD OF SELECTION AND EVALUATION CRITERIA	10
4.1 4.2 4.3 4.4 4.5	Introduction Phase 1 Screening Criteria Phase 1 Evaluation and Selection Criteria Phase 2 Evaluation and Selection Criteria Release of Proposal Review Information	10 10 11 12 12
5.0	CONSIDERATIONS	12
5.1 5.2 5.3 5.4 5.5 5.6	Awards Reports Payment Schedule Proprietary Information, Inventions, and Patents Awardee Commitments Additional Information	12 13 13 14 16 18

6.0	SUBMISSION OF PROPOSALS	18
6.1	Deadline for Proposals	18
6.2	Proposal Submission	19
6.3	Warning	19
7.0	SCIENTIFIC AND TECHNICAL INFORMATION ASSISTANCE	20
7.1	General Information	20
7.2	Oceanography and Marine Science	21
8.0	TECHNICAL TOPICS	22
	Topics from the National Oceanic and Atmospheric Administration (NOAA)	
8.1	Atmospheric and Hydrological Sciences	22
8.2	Ocean Observation Systems	28
8.3	Living Marine Resources	31
8.4	Ocean Science	33
8.5	Cartography and Information Systems	36
	Topics from the National Institute of Standards and Technology (NIST)	
8.6	Quality Assurance	41
8.7	Advanced Technology Program	42
8.8	Electronics and Electrical Engineering	44
8.9	Manufacturing Engineering	54
8.10	Chemical Science and Technology	63
8.11	Physics	68
8.12	Materials Science and Engineering	81
8.13	Building and Fire Research	90
8.14	Information Technology	100
9.0	SUBMISSION FORMS	105

U.S. DEPARTMENT OF COMMERCE

PROGRAM SOLICITATION FOR SMALL BUSINESS INNOVATION RESEARCH

1.0 PROGRAM DESCRIPTION

1.1 Introduction

The Department of Commerce (DOC) invites small businesses to submit research proposals under this solicitation entitled "Small Business Innovation Research (SBIR)." Firms with strong research capabilities in any of the areas listed in Section 8 of this solicitation are encouraged to participate. **Unsolicited proposals are not accepted under the SBIR program**.

Objectives of this solicitation include stimulating technological innovation in the private sector, strengthening the role of small business in meeting Federal research and development (R&D) needs, increasing the commercial application of innovations derived from Federal research, and improving the return on investment from Federally-funded research for the economic benefit of the Nation.

1.2 Three-Phase Program

The "Small Business Research and Development Enhancement Act of 1992" (P.L. 102-564) was signed by the President on October 28, 1992, and is operated under a Small Business Administration (SBA) directive dated January 26, 1993. The Act requires the Department of Commerce to establish a three-phase SBIR program by reserving a percentage of its extramural R&D budget to be awarded to small business concerns for innovation research.

The funding vehicles for DOC's SBIR program in both Phase 1 and Phase 2 are primarily contracts, although at DOC's discretion, some research topics may be funded by grants.

DOC has the unilateral right to select SBIR research topics and awardees in both Phase 1 and Phase 2, and to award several or no contracts or grants under a given topic.

1.2.1 Phase 1 - Feasibility Research

Phase 1 is to determine the technical feasibility of ideas submitted for consideration and the quality of performance of the small business concern receiving an award.

Therefore, the proposal should concentrate on research that will significantly contribute to proving the feasibility of the approach, a prerequisite to further support in Phase 2.

1.2.2 Phase 2 - Research and Development

Only firms that are awarded Phase 1 contracts or grants under this solicitation will be given the opportunity of submitting a Phase 2 proposal immediately following completion of Phase 1.

Phase 2 is the R&D or prototype development phase. It will require a comprehensive proposal outlining the effort in detail. Further information regarding Phase 2 proposal requirements will be provided to all firms receiving Phase 1 contracts or grants.

1.2.3 Phase 3 - Commercialization

In Phase 3, it is intended that non-SBIR capital be used by the small business to pursue commercial applications of Phase 2.

1.3 Eligibility

Each organization submitting a proposal **must** qualify as a small business (Section 2.1) for research or R&D purposes (Section 2.2).

In addition, the primary employment of the principal investigator must be with the small business at the time of the award. More than one-half of the principal investigator's time must be spent with the small business for the period covered by the award. Primary employment with a small business precludes full-time employment with another organization.

Also, for both Phase 1 and Phase 2, the work must be performed in the United States. "United States" means the fifty states, the territories and possessions of the United States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and the District of Columbia.

Joint ventures and limited partnerships are eligible, provided the entity created qualifies as a small business as defined in this solicitation. **Consultative arrangements** between firms and universities or other non-profit organizations are encouraged, with the small business serving as the prime contractor.

1.4 Contact with DOC

In the interest of competitive fairness, oral or written communication with DOC or any of its components concerning additional information on the technical topics described in Section 8 of this solicitation **is prohibited**.

Requests for general information on the DOC SBIR program may be addressed to:

Dr. Joseph M. Bishop or DOC SBIR Program Manager 1315 East-West Highway Silver Spring, MD 20910 Telephone: (301) 713-3565

Fax: (301) 713-4100

E-mail: joseph.bishop@noaa.gov

Mr. Norman Taylor

NIST SBIR Program Manager Building 820, Room 306 Gaithersburg, MD 20899 Telephone: (301) 975-4517

Fax: (301) 548-0624

E-mail: norman.taylor@nist.gov

Information sources and/or document services are listed in Section 7.

2.0 DEFINITIONS

2.1 Small Business

A small business concern is one that, at the time of award for Phase 1 and Phase 2:

- (a) is independently owned and operated, is organized for profit, is not dominant in the field of operation in which it is proposing, and has its principal place of business located in the United States (Section 1.3);
- (b) is at least 51 percent owned, or in the case of a publicly owned business, at least 51 percent of its voting stock is owned by United States citizens or lawfully admitted permanent resident aliens; and
- (c) has, including its affiliates, a number of employees not exceeding 500, and meets the other small business regulatory requirements found in 13 Code of Federal Regulations Part 121. Business concerns are affiliates of one another when, either directly or indirectly, (1) one concern controls or has the power to control the other, or (2) a third party controls both. Control can be exercised through common ownership, common management, and contractual relationships. Business concerns include, but are not limited to, any individual, partnership, joint venture, association, or cooperative.

2.2 Research or Research and Development

Any activity that is (a) a systematic, intensive study directed toward greater knowledge or understanding of the subject studied; (b) a systematic study directed specifically toward applying new knowledge to meet a recognized need; or (c) a systematic application of knowledge toward the production of useful materials, devices, services, or methods, and includes design, development, and improvement of prototypes and new processes to meet specific requirements.

In general, the DOC SBIR program will fund Phase 1 and 2 proposals with objectives that can be defined by (b) and (c) above.

2.3 Socially and Economically Disadvantaged Small Business Concern

Is one that is:

- (a) at least 51 percent owned by (1) an American Indian tribe or a native Hawaiian organization, or (2) one or more socially and economically disadvantaged individuals, and
- (b) controlled by one or more such individuals in its management and daily business operations.

A socially and economically disadvantaged individual is defined as a member of any of the following groups: Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, or any other individual found to be socially and economically disadvantaged by the Small Business Administration (SBA) pursuant to Section 8(a) of the Small Business Act, 15 U.S. Code (U.S.C.) 637(a).

2.4 Women-Owned Small Business

A small business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

2.5 Subcontract

Any agreement, other than one involving an employer-employee relationship, entered into by a Federal Government funding awardee, calling for supplies or services required solely for the performance of the original funding agreement.

2.6 Commercialization

This is the process of locating or developing markets and producing and delivering products for sale (whether by the originating party or by others). As used here, commercialization includes both Government and private sector markets.

3.0 PROPOSAL PREPARATION

3.1 Proposal Requirements

The objective is to provide sufficient information to demonstrate that the proposed work represents a sound approach to the investigation of an important scientific or engineering innovation worthy of support. It must meet all the requirements of the subtopic in Section 8 to which it applies.

A proposal must be self-contained and written with all the care and thoroughness of a scientific paper submitted for publication. It should indicate a thorough knowledge of the current status of research in the subtopic addressed by the proposal. Each proposal should be checked carefully by the offeror to ensure inclusion of all essential material needed for a complete evaluation. It must contain adequate information to be peer reviewed as research. All units of measurement should be in the metric system.

DOC reserves the right not to submit to technical review any proposal which it finds to have insufficient scientific and technical information or one which fails to comply with the administrative procedures as outlined on the Checklist of Requirements in Section 9.

The proposal must not only be responsive to the specific DOC program interests described in Section 8 of the solicitation, but it also should serve as the basis for technological innovation leading to new commercial products, processes, or services that benefit the public. An organization may submit different proposals on different subtopics or different proposals on the same subtopic under this solicitation. Where the proposed innovation applies to more than one subtopic, the offeror must choose that subtopic which is most relevant to the offeror's technical concept.

Proposals principally for the commercialization of proven concepts or for market research must not be submitted for Phase 1 funding, since such efforts are considered the responsibility of the private sector.

The proposal should be direct, concise, and informative. Promotional and other material not related to the project should be omitted. **The Phase 1 proposal must describe potential commercial applications.**

3.2 Phase 1 Proposal Limitations

Page Length - no more than 25 pages, consecutively numbered, including

the cover page, project summary, main text, references, resumes, any other enclosures or attachments, and the

proposal summary budget.

Paper Size - must be 21.6 cm X 27.9 cm (8 ½" X 11").

• Print Size - must be easy to read with a fixed pitch font of 12 or

fewer characters per inch or proportionally spaced font of point size 10 or larger with no more than 6 lines per

<u>inch</u>.

Supplementary material, revisions, substitutions, audio or video tapes, or computer floppy disks will **not** be accepted.

Proposals not meeting these requirements will be returned without review.

3.3 Phase 1 Proposal Format

3.3.1 Cover Sheet

Complete Section 9 "Cover Page" as page 1 of each copy of each proposal. **NO OTHER COVER WILL BE ACCEPTED.** Xerox copies are permitted.

3.3.2 Project Summary

Complete Section 9 "Project Summary" as page 2 of your proposal. The technical abstract should include a brief description of the problem or opportunity, the innovation, project objectives, and technical approach.

In summarizing anticipated results, include technical implications of the approach (for both Phase 1 and 2) and the potential commercial applications of the research. The Project Summary of successful proposals will be published by DOC and, therefore, must not contain proprietary information.

3.3.3 Technical Content

Beginning on page 3 of the proposal, include the following items with headings as shown:

- (a) Identification and Significance of the Problem or Opportunity. Make a clear statement of the specific research problem or opportunity addressed, its innovativeness, commercial potential, and why it is important. Show how it applies to a specific subtopic in Section 8.
- (b) Phase 1 Technical Objectives. State the specific objectives of the Phase 1 effort, including the technical questions it will try to answer, to determine the feasibility of the proposed approach.
- (c) Phase 1 Work Plan. Include a detailed description of the Phase 1 R&D plan. The plan should indicate not only what will be done, but where it will be done, and how the R&D will be carried out. The methods planned to achieve each objective or task should be discussed in detail. This section should be at least one-third of the proposal.
- (d) Related Research or R&D. Describe research or R&D that is directly related to the proposal, including any conducted by the principal investigator or by the proposer's firm. Describe how it relates to the proposed effort, and describe any planned coordination with outside sources. The purpose of this section is to persuade reviewers of the proposer's awareness of recent developments in the specific topic area.
- (e) Key Personnel and Bibliography of Related Work. Identify key personnel involved in Phase 1, including their related education, experience, and publications. Where resumes are extensive, summaries that focus on the most relevant experience and publications are suggested. List all other commitments that key personnel have during the proposed period of contract performance.
- (f) Relationship with Future R&D. Discuss the significance of the Phase 1 effort in providing a foundation for the Phase 2 R&D effort. Also state the anticipated results of the proposed approach, if Phases 1 and 2 of the project are successful.
- (g) Facilities and Equipment. The conduct of advanced research may require the use of sophisticated instrumentation or computer facilities. The proposer should provide a detailed description of the availability and location of the facilities and equipment necessary to carry out Phase 1. If the use of Government owned facilities and/or equipment is necessary to

- carry out Phase 1, the proposer should state their location, when required, and give details of arrangements made.
- (h) Consultants and Subcontracts. The purpose of this section is to convince DOC that: (1) research assistance from outside the firm materially benefits the proposed effort, and (2) arrangements for such assistance are in place at the time the proposal is submitted.

Outside involvement in the project is encouraged where it strengthens the conduct of the research; such involvement is not a requirement of this solicitation.

- Consultant A person outside the firm, named in the proposal as contributing to the research. Must provide a signed statement confirming his/her availability, role in the project, and agreed consulting rate for participation in the project. This statement is part of the page count.
- 2. Subcontract Similarly, where a subcontract is involved in the research, the subcontracting institution must furnish a letter signed by an appropriate official describing the programmatic arrangements and confirming its agreed participation in the research, with its proposed budget for this participation. This letter is part of the page count.
- (i) Potential Commercial Application and Follow-on Funding Commitment.

 Describe in detail the commercial potential of the proposed research and how commercialization would be pursued.
- (j) Cooperative Research and Development Agreements (CRADA). State if the applicant is a current CRADA partner with DOC, or with any other federal agency, naming the agency, title of the CRADA, and any relationship with the proposed work.
- (k) Guest Researcher. State if the applicant is a guest researcher at DOC, naming the sponsoring laboratory.

3.4 Equivalent Proposals or Awards

A firm may have received other SBIR awards or elected to submit essentially equivalent proposals under other SBIR program solicitations. In these cases, a statement **must**

follow the Technical Content section in the proposal indicating:

- (a) the name and address of any agency to which a proposal was submitted or from which an SBIR award was received;
- (b) the date of proposal submission or date of award;
- (c) the title, number, and date of the SBIR program solicitation under which a proposal was submitted or award received;
- (d) the title of the research project; and
- (e) the name and title of the principal investigator for each proposal submitted or award received.

If no equivalent proposal is under consideration or equivalent award received, a statement to this effect **must** be included in this section.

3.5 Prior SBIR Phase 2 Awards

If a small business concern has received more than 15 Phase 2 awards from **all** Federal agencies in the prior 5 fiscal years, it must submit on a separate page, the names of awarding agencies, dates of awards, funding agreements numbers, amounts, topics or subtopic titles, follow-on agreements amounts, sources and dates of commitments, and current commercialization status for each Phase 2. This required information shall not be part of the page count limitation.

3.6 Proposed Budget

Complete the "SBIR Proposal Summary Budget" (Section 9) for the Phase 1 effort, and include it as the last page of the proposal. Some items of this form may not apply. Enough information should be provided to allow DOC to understand how the offeror plans to use the requested funds if the contract or grant is awarded. A complete cost breakdown should be provided setting forth base labor rates, proposed number of hours, overhead, G&A, and profit. A reasonable profit will be allowed. When proposing travel, set forth how many trips, number of people, labor categories, destination of travel, duration of trip, commercial air fare or mileage rate, per diem expenses, and purpose of travel. Budgets for travel funds must be justified and related to the needs of the project.

Where equipment is to be purchased, list each individual item with the corresponding cost. The inclusion of equipment will be carefully reviewed relative to need and appropriateness for the research proposed. Equipment is defined as an article of

nonexpendable, tangible property having a useful life of more than 1 year and an acquisition cost of \$5,000 or more per unit. **Title to equipment will be vested with DOC, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment.**

For a fee, specialized NIST/NOAA equipment and facilities may be made available. When these are needed, the proposal must identify the specific requirements and state the arrangements made with the appropriate NIST/NOAA manager.

For Phase 1, a minimum of two-thirds of the research and/or analytical effort must be performed by the proposing firm. The total cost for all consultant fees, facility leases, usage fees, and other subcontract or purchase agreements may not exceed one-third of the total contract. For Phase 2, one-half of the research and/or analytical effort must be performed by the proposing firm.

4.0 METHOD OF SELECTION AND EVALUATION CRITERIA

4.1 Introduction

All Phase 1 and 2 proposals will be evaluated on a competitive basis. Each Phase 1 proposal will be screened by DOC procurement staff to ensure that it meets the administrative requirements outlined in Section 4.2. Proposals that meet these requirements will be peer reviewed, undergo competition within each laboratory, and may also undergo a third round of competition across the agency.

4.2 Phase 1 Screening Criteria

To avoid misunderstanding, small businesses are cautioned that Phase 1 proposals not satisfying all the screening criteria shall be returned without peer review and shall be eliminated from consideration for contract or grant award. These proposals shall not be resubmitted (with or without revision) under this solicitation. All copies of such proposals failing the screening process shall be returned with a letter of notification. The screening criteria are:

- (a) The proposing firm must qualify as a small business (Section 2.1). If it is a subsidiary of another firm, this limit applies to all employees under control of the parent organization.
- (b) The Phase 1 proposal must meet **all** of the requirements stated in Section 3.

- (c) The Phase 1 proposal must be limited to one subtopic and clearly address research for that subtopic.
- (d) Phase 1 proposal budgets must not exceed \$75,000 (except subtopics with the suffix "SG", which are limited to \$50,000), including subcontract, indirect cost, and fee.
- (e) The project duration for the Phase 1 research must not exceed 6 months.
- (f) A minimum of two-thirds of expenditures under each Phase 1 project must be carried out by the proposing firm.
- (g) The proposal must contain information sufficient to be peer reviewed as research.

4.3 Phase 1 Evaluation and Selection Criteria

Phase 1 proposals will be rated by NOAA and NIST scientists or engineers with equal consideration given to the following criteria, except for item (a), which will receive twice the value of any of the other items:

- (a) The scientific and technical merit of the Phase 1 research plan and its relevance to the objectives, with special emphasis on its innovativeness and originality.
- (b) Importance of the problem or opportunity and anticipated benefits of the proposed research to DOC, and the commercial potential, if successful.
- (c) How well do the research objectives, if achieved, establish the feasibility of the proposed concept and justify a Phase 2 effort?
- (d) Qualifications of the principal investigator(s), other key staff, and consultants, and the probable adequacy of available or obtainable instrumentation and facilities.

Technical reviewers will base their ratings on information contained in the proposal. It cannot be assumed that reviewers are acquainted with any experiments referred to, key individuals, or the firm.

Final award decisions will be made by DOC based upon ratings assigned by reviewers and consideration of other factors, including possible duplication of other research, the importance of the proposed research as it relates to DOC needs, and the availability of

funding. DOC may elect to fund several or none of the proposals received on the same subtopic.

Upon selection of a proposal for a Phase 1 award, DOC reserves the right to negotiate the amount. A Phase 1 award shall be made at an amount determined by DOC to be reasonable.

4.4 Phase 2 Evaluation and Selection Criteria

The Phase 2 proposal will undergo DOC and/or external peer review for the purpose of determining overall technical or scientific merit. Each of the following evaluation criteria will receive approximately equal weight, except for item (a), which will receive twice the value of any of the other items:

- (a) The scientific and technical merit with emphasis on innovation and originality.
- (b) Degree to which the Phase 1 objectives were met.
- (c) The commercial potential of the proposal as evidenced by: a) a record of commercialization, b) the existence of Phase 2 funding commitments from non-SBIR sources, c) existence of Phase 3 follow-on commitments, and d) the presence of other indications of commercial potential of the research.
- (d) The adequacy of the Phase 2 objectives to meet the problem or opportunity.
- (e) The qualifications of the principal investigator and other key personnel to carry out the proposed work.

Upon selection of a proposal for Phase 2 award, DOC reserves the right to negotiate the amount. Phase 2 awards will be made only at amounts determined by DOC to be reasonable.

4.5 Release of Proposal Review Information

After final award decisions have been announced, the technical evaluations of a proposal will be provided to the proposer only upon written request and for a period not to exceed 90 days. The identity of the reviewers will not be disclosed.

5.0 CONSIDERATIONS

5.1 Awards

Contingent upon availability of funds, DOC anticipates making about **42** Phase 1 firm-fixed-price contracts or grants of no more than **\$75,000** each (except for subtopics with the suffix "SG", which are limited to \$50,000). Of these, approximately **12** will be made

by the National Oceanic and Atmospheric Administration (NOAA) and approximately **30** by the National Institute of Standards and Technology (NIST). Performance period shall be no more than 6 months beginning on the contract start date.

Historically, DOC has funded five to ten percent of the Phase 1 proposals submitted.

Phase 2 awards shall be for no more than **\$300,000** (except subtopics with an "SG" suffix, which are limited to \$200,000). The period of performance in Phase 2 will depend upon the scope of the research, but should not exceed 24 months.

It is anticipated that approximately one-third of the Phase 1 awardees will receive Phase 2 awards, depending upon availability of funds. To provide for an in-depth review of the Phase 1 final report and the Phase 2 proposal and commercialization plan, Phase 2 awards will be made approximately 7 months after the completion of Phase 1.

This solicitation does not obligate DOC to make any awards under either Phase 1 or Phase 2. Futhermore, DOC is not responsible for any monies expended by the proposer before award of any contract or grant resulting from this solicitation.

5.2 Reports

Seven copies of a final report on the Phase 1 project shall be submitted to DOC within 30 calendar days after completion of the Phase 1 research. The final report shall include a single-page project summary as the first page, identifying the purpose of the research, and giving a brief description of the research carried out, the research findings or results, and the commercial applications of the research in a final paragraph. The balance of the report should indicate in detail the research objectives, research work carried out, results obtained, and estimates of technical feasibility.

All final reports must carry an acknowledgment on the cover page such as: "This material is based upon work supported by the Department of Commerce under contract or grant number ______. Any opinions, findings, or conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Department of Commerce."

5.3 Payment Schedule

The specific payment schedule (including payment amounts) for each contract or grant will be incorporated into the contract or grant upon completion of negotiations between the Government and the successful Phase 1 or Phase 2 contractor or grantee.

5.4 Proprietary Information, Inventions, and Patents

5.4.1 Limited Rights Information and Data

Information contained in unsuccessful proposals will remain the property of the proposer. Any proposal which is funded will not be made available to the public, except for the "Project Summary" page.

The inclusion of proprietary information is discouraged unless it is necessary for the proper evaluation of the proposal.

Proprietary information submitted to DOC will be treated in confidence, to the extent permitted by law, if it is confined to a separate page or pages and marked with a legend similar to this:

"Following is proprietary information which (name of proposing firm) requests not be released to persons outside the Government, except for purposes of evaluation."

Any other legend may be unacceptable to the Department of Commerce and may constitute grounds for return of the proposal without further consideration. Without assuming any liability for inadvertent disclosure, DOC will limit dissemination of such information to its employees and, where necessary for evaluation, to outside reviewers on a confidential basis.

Since technical reports by the principal investigator or project director may eventually be made available to the public, such reports shall not contain any language limiting their use other than for SBIR data as described below.

5.4.2 Copyrights

The contractor or grantee may normally establish claim to copyright any written material first produced in the performance of an SBIR contract or grant. If a claim to copyright is made, the contractor or grantee shall affix the applicable copyright notice of 17 U.S.C. 401 or 402 and acknowledgment of Government sponsorship (including contract or grant number) to the material when delivered to the Government, as well as when the written material or data are published or deposited for registration as a published work in the U.S. Copyright Office. For other than computer software, the contractor or grantee gives to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable, worldwide license to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on

behalf of the Government. For computer software, the contractor or grantee gives to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable, worldwide license for all such computer software to reproduce, prepare derivative works, and perform publicly and display publicly, by or on behalf of the Government.

5.4.3 Data Rights

Except for copyrighted data discussed above, the Government shall normally have unlimited rights in:

- (a) data specifically identified in the SBIR contract or grant as data to be delivered without restriction;
- (b) form, fit, and function data delivered under the contract or grant;
- (c) data delivered under the contract or grant that constitute manuals or instructions and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under the contract or grant; and
- (d) all other data delivered under the contract or grant unless identified as SBIR data. According to Federal Acquisition Regulation 52.227-20, Rights and Data - SBIR Program (March 1994), the contractor or grantee is authorized to affix the following "SBIR Rights Notice" to SBIR data delivered under the contract or grant:

SBIR RIGHTS NOTICE

These SBIR data are furnished with SBIR rights under				
Contract or Grant No	(and subcontract			
, if appropriat	e). For a period of 4			
years after acceptance of all items	to be delivered under this			
contract or grant, the Government a	agrees to use these data			
for Government purposes only, and they shall not be				
disclosed outside the Government (including disclosure for				
procurement purposes) during such period without				
permission of the contractor or grantee, except that, subject				
to the forgoing use and use by supp	oort contractors. After			
the aforesaid 4-year period, the Go	vernment has a royalty-			

free license to use, and to authorize others to use on its behalf, these data for Government purposes, but is relieved of all disclosure prohibitions and assumes no liability for unauthorized use of these data by third parties. This Notice shall be affixed to any reproductions of these data, in whole or in part.

(END OF NOTICE)

The Government's sole obligation with respect to any properly identified SBIR data shall be as set forth in this paragraph above.

5.4.4 Patents

Small business firms normally may retain the worldwide patent rights to any invention made with DOC support. DOC receives a royalty-free license for Federal Government use, reserves the right to require the patent holder to license others in certain circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by P.L. 102-564, DOC will not make public any information disclosing a DOC-supported invention for a 4-year period to allow the contractor or grantee a reasonable time to pursue a patent.

5.5 Awardee Commitments

On award of a contract or grant, the contractor or grantee will be required to make certain legal commitments. The outline that follows illustrates the types of provisions that will be included in the Phase 1 contract or grant.

- (a) Standards of Work. Work performed under the contract or grant must conform to high professional standards.
- (b) *Inspection of Work*. Work performed under the contract or grant is subject to Government inspection and evaluation at all reasonable times.
- (c) Examination of Records. The Comptroller General (or a duly authorized representative) shall have the right to examine pertinent records of the contractor or grantee involving transactions related to this contract or grant.
- (d) Default. The Government may terminate the agreement if the contractor fails to perform the work contracted. A grantee must provide its best effort to complete the work.

- (e) Termination for Convenience. The contract or grant may be terminated at any time by the Government if it deems termination to be in the best interest, in which case the contractor or grantee will be compensated for work performed and for reasonable termination costs.
- (f) Disputes. Any dispute concerning the contract or grant, which cannot be resolved by agreement, shall be decided by the Contracting or Grants Officer with right to appeal.
- (g) Contract or Grant Work Hours. The contractor or grantee cannot require an employee to work more than 8 hours a day or 40 hours a week, unless the employee is compensated accordingly (i.e., receives overtime pay).
- (h) Equal Opportunity. The contractor or grantee will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
- (i) Affirmative Action for Veterans. The contractor or grantee will not discriminate against any employee or applicant for employment because he or she is a disabled veteran of the Vietnam era.
- (j) Affirmative Action for the Handicapped. The contractor or grantee will not discriminate against any employee or applicant for employment because he or she is physically or mentally handicapped.
- (k) Officials Not to Benefit. No member of or delegate to Congress shall benefit from any SBIR contract or grant.
- (I) Covenant Against Contingent Fees. No person or agency has been employed to solicit or secure the contract or grant upon an understanding for compensation, except bona fide employees or commercial agencies maintained by the contractor or grantee for the purpose of securing business.
- (m) Gratuities. The contract or grant may be terminated by the Government if any gratuity has been offered to any representative of the Government to secure the contract.
- (n) Patent Infringement. The contractor or grantee shall report each notice or claim of patent infringement based on the performance of the contract.

(o) American-Made Equipment and Products. When purchasing either equipment or a product with funds provided through the contract or grant, purchase only American-made equipment and products, to the extent possible in keeping with the overall research needs of the project.

5.6 Additional Information

- (a) Projects--The responsibility for the performance of the principal investigator, and other employees or consultants who carry out the proposed work, lies with the management of the organization receiving an award.
- (b) Organizational Information--Before award of an SBIR contract or grant, the Government may request the proposer to submit certain organizational, management, personnel, and financial information to assure responsibility of the proposer.
- (c) Duplicate Awards--If an award is made under this solicitation, the contractor or grantee will be required to certify that he or she has not previously been, nor is currently being, paid for essentially equivalent work by any agency of the Federal Government. Severe penalties may result from such actions.

This program solicitation is intended for informational purposes and reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR contract or grant, the terms of the contract or grant are controlling.

6.0 SUBMISSION OF PROPOSALS

6.1 Deadline for Proposals

Deadline for Phase 1 proposal receipt (7 copies) at the Department of Commerce Contract Administration Branch is noon on January 14, 1998.

DOC assumes no responsibility for evaluating proposals received after the stated deadline or that do not adhere to the other requirements of this solicitation (see checklist on p. 114). Such proposals may be returned to the proposer without review.

Federal Acquisition Regulations (FAR 52.215-10) regarding late proposals shall apply.

Phase 2 proposals are due at about the same time as Phase 1 final reports - 7 months after commencement of the Phase 1 contract (late June 1998).

Proposers are cautioned to be careful of unforeseen delays which can cause late arrival of proposals at DOC, resulting in them not being included in the evaluation procedures. No information on the status of proposals under scientific/technical evaluation will be available until formal notification is made in June 1998.

6.2 Proposal Submission

Proposals (7 copies) should only be addressed to:

ATTN: SBIR Proposals
U.S. Department of Commerce, NOAA
Contract Administration Branch, Code OFA513
1305 East-West Highway, SSMC4, Station 7523
Silver Spring, Maryland 20910
Telephone: (301) 713-0829

For local delivery, the Contract Administration Branch is located near the intersection of East-West Highway and Colesville Road, near the Silver Spring Metro stop.

Acknowledgment of receipt of a proposal by DOC will be made by **mail only**. All correspondence relating to proposals must cite the specific **proposal number** identified on the acknowledgment letter and be sent to the above address.

- (a) Packaging--Secure packaging is mandatory. The DOC cannot process proposals damaged in transit. All 7 copies of the proposal must be sent in the same package. Do not send separate "information copies," or several packages containing parts of a single proposal, or two packages of 7 copies of the same proposal. The top copy must be signed as an original by the principal investigator and the corporate official. Other copies may be photocopies.
- (b) Bindings--<u>Do not use special bindings or covers</u>. Staple the pages in the upper left hand corner of each proposal. Separation or loss of proposal pages cannot be the responsibility of DOC.

6.3 Warning

While it is permissible, with proper notification to DOC, to submit identical or essentially equivalent proposals for consideration under numerous Federal program solicitations, it is unlawful to enter into contracts or grants requiring essentially equivalent effort. If there is any question concerning this, it must be disclosed to the soliciting agency or agencies before award.

7.0 SCIENTIFIC AND TECHNICAL INFORMATION ASSISTANCE

7.1 General Information

The following organizations may be sources for providing technology search and/or document services and may be contacted directly:

NOAA Library 1315 East-West Highway Second Floor, SSMC3 Silver Spring, MD 20910 (301) 713-2600

NIST Library Admin. Bldg., Room E106 Gaithersburg, MD 20899 (301) 975-3052

National Technology Transfer Center (NTTC) 316 Washington Avenue Wheeling, WV 26003 (304) 243-2520

Mid-Atlantic Technology Applications Center 823 William Pitt Union University of Pittsburgh Pittsburgh, PA 15260 (412) 648-7000

Southern Technology Applications Center One Progress Blvd. Box 24 Alachua, FL 32615 (904) 462-3913 UK Technology Applications Center University of Kentucky 109 Kinkead Hall Lexington, KY 40506-0057 (606) 257-6322

National Technical Information Service 5285 Port Royal Road Springfield, VA 22161 (703) 487-4600

NERAC, Inc. One Technology Drive Tolland, CT 06084 (203) 872-7000

Small Business Innovation Center Advanced Technology Center of Southeastern Pennsylvania 3624 Market Street Philadelphia, PA 19104 (215) 382-0380

NASA Far West Regional Technology Transfer Center University of Southern California 3716 South Hope Street, #200 Los Angeles, CA 90007 (213) 743-2353

7.2 Oceanography and Marine Science

Scientific information in the areas of oceanography and marine science may be obtained from the following organizations:

University of Alaska P.O. Box 755040 Fairbanks, AK 99775 907/474-7086

University of California-San Diego 9500 Gilman Drive LaJolla, CA 92093 619/534-4440

Hancock Institute for Marine Studies University Park Los Angeles, CA 90089 213/740-1961

University of Connecticut 1084 Shennecossett Road Groton, CT 06340 203/445-3457

University of Delaware Robinson Hall, Rm 111 Newark, DE 19716 302/831-2841

University of Florida Building 803 Gainesville, FL 32611 904/392-5870

University of Georgia Ecology Building Athens, GA 30602 706/542-6009

University of Hawaii 1000 Pope Road, Rm. 223 Honolulu, HI 96822 808/956-7031

University of Illinois 65 Mumford Hall 1301 W. Gregory Drive Urbana, IL 61801 217/333-9448 Purdue University 1159 Forestry Building W. Lafayette, IN 47907 317/494-3573

Louisiana State University 128 Wetland Resources Baton Rouge, LA 70803 504/388-6710

University of Maine 14 Coburn Hall Orono, ME 04469- 0114 207/581-1436

University of Maryland 0112 Skinner Hall College Park, MD 20742 301/405-6371

Massachusetts Institute of Technology Bldg. E38, Room 330 77 Massachusetts Avenue Cambridge, MA 02139 617/253-7131

Woods Hole Oceanographic Institution CRL 209 Woods Hole, MA 02543 508/457-2000 ext. 2665

University of Michigan 4107 I.S.T. Building 2200 Bonisteel Blvd. Ann Arbor, MI 48109 313/763-1437

University of Minnesota 2305 East 5th Street Duluth, MN 55812 218/726-8106 MS-AL Sea Grant Consortium P.O. Box 7000 703 East Beach Drive Ocean Springs, MS 39564 601/875-9341

University of New Hampshire Ocean Process Analysis Lab. 142 Morse Hall Durham, NH 03824 603/862-3505

NJ Marine Sciences Consortium Building No. 22 Ft. Hancock, NJ 07732 908/872-1300

State University of New York 115 Nassau Hall Stony Brook, NY 11794 516/632-6905

North Carolina State University Box 8605 Raleigh, NC 27695 919/515-1454

Ohio State University 1541 Research center 1314 Kinnear Road Columbus, OH 43212 614/292-8949

Oregon State University Administrative Services Corvallis, OR 97331 503/737-3396 University of Puerto Rico Department of Marine Science P.O. Box 5000 Mayaguez, PR 00681 809/832-3585

University of Rhode Island Marine Resources Bldg. Narragansett Bay Campus Narragansett, RI 02882 401/792-6800

South Carolina Sea Grant Consortium 287 Meeting Street Charleston, SC 29401 803/727-2078

Texas A&M University 1716 Briarcrest Drive Suite 702 Bryan, TX 77802 409/845-3854

Virginia Graduate Marine Science Consortium Madison House 170 Rugby Road Charlottesville, VA 22903 804/924-5965

University of Washington HG-30 3716 Brooklyn Ave, N.E. Seattle, WA 98105-6716 206/543-6600

University of Wisconsin-Madison 1800 University Avenue Madison, WI 53705 608/262-0905